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EXAMINER	
KIM, DAVID S	
ART UNIT	**PAPER NUMBER**
2613	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,200	PIEHLER, DAVID M.	
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 March 2004 and 23 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. **Claim 23** is objected to because of the following informalities:

In claim 23, "optical transmitting of the digital electrical signal" is used where -- optical transmitting of the optical signal modulated by the digital electrical signal -- may be intended. Otherwise, optical transmission of an electrical signal does not sound technically correct.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 1, 3, and 8** are rejected under 35 U.S.C. 102(b) as being anticipated by Pechner et al. (WO 01/26263 A2, hereinafter "Pechner").

Regarding claim 1, Pechner discloses:

Apparatus (Fig. 1A) comprising:

an input port (input to transmitter 210B) for receiving a digital electrical or optical signal;

a modulator (640) having an input terminal coupled to the input port and providing on its output terminal a radio frequency signal;

an optical transmitter (240) having an input terminal coupled to receive the radio frequency signal from the modulator and providing on its output terminal an optical signal; and

a controller (290) coupled to a control port of the modulator and to a control port of the optical transmitter, and having a user interface ("external port" on p. 8, 2nd paragraph), thereby to control jointly the modulator and the optical transmitter.

Regarding claim 3, Pechner discloses:

The apparatus of claim 1, wherein the modulator provides a quadrature amplitude modulated (QAM on p. 14 last paragraph) radio frequency signal converted onto a radio frequency carrier (e.g., any suitable carrier frequency in Fig. 7B, any suitable carrier frequency in Fig. 8B).

Regarding claim 8, Pechner discloses:

The apparatus of claim 1, wherein the optical transmitter outputs an optical signal having substantially a single wavelength (the "optical carrier" on p. 22, l. 14 is understood to have substantially a single wavelength).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 4 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pechner.

Regarding claim 4, Pechner does not expressly disclose:

The apparatus of claim 1, wherein a user enters as data to the controller at least one of a radio frequency power level, a number of radio frequency channels, a bandwidth of at least one radio frequency channel, and a type of modulation of the modulator.

However, notice that the controller of Pechner (control system 290) controls an actual radio frequency power level to match a target radio frequency power level (p. 19, 1st full paragraph). Such a target level is implied to be known/stored in the controller. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange a user to enter as data at least a target radio frequency power level. One of ordinary skill in the art would have been motivated to do this since the controller of Pechner should know/store such a radio frequency power level, and data entry by a user is an intuitively obvious source of such data.

Regarding claim 9, Pechner does not expressly disclose:

The apparatus of claim 1, wherein the controller receives at least one parameter from the user interface relating to operation of one of the modulator and optical transmitter, and determines at least one parameter relating to operation of the other of the modulator and optical transmitter.

Regarding the limitation of "wherein the controller receives at least one parameter from the user interface relating to operation of one of the modulator and optical transmitter", notice that the controller of Pechner (control system 290) may be used for troubleshooting the apparatus (p. 8, l. 13-15). Common troubleshooting techniques often include the use of some parameter from a user interface for interrogating the components of an apparatus for fault detection and/or fault location. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to receive at least one parameter from the user interface relating to operation of one of the modulator and optical transmitter. One of ordinary skill in the art would have been motivated to do this since a troubleshooter generally desires to interrogate/query an apparatus to generate some kind of response from the apparatus indicative of a detected fault or a fault location, e.g., related to the modulator or the optical transmitter.

Regarding the limitation of "wherein the controller...determines at least one parameter relating to operation of the other of the modulator and optical transmitter", notice that Pechner teaches the control of the wavelength of the optical transmitter (p. 22, l. 19-25) through determining at least one parameter relating to operation of the optical transmitter (e.g., driver current or temperature of a laser). Although Pechner does not teach that its controller (control system 290) performs this wavelength control, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange this controller to do so. One of ordinary skill in the art would have been motivated to do this since this controller already provides control functions for other aspects of the apparatus. That is, adding another transmitter control function to an existing transmitter controller is an obvious variant of Pechner.

6. **Claims 2, 5, 7, 10, 12-13, and 16-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pechner in view of the admitted prior art (hereinafter the "APA).

Regarding claims 2, 5, and 7, Pechner does not expressly disclose:

(claim 2) The apparatus of claim 1, wherein the modulator is adapted to receive one of an Ethernet or an ASI compliant digital electrical or optical signal.

(claim 5) The apparatus of claim 1, wherein the user interface is SNMP (simple network management protocol) compliant.

(claim 7) The apparatus of claim 1, wherein the optical transmitter is a narrowcast transmitter.

However, the APA shows that these limitations are standard and typical in the art (Applicant's specification: Ethernet and ASI in paragraph [0007], SNMP in paragraph [0009], a narrowcast transmitter in paragraphs [0007],[0008], and [0010]). Pechner does not teach against these limitations, so it follows that employing them would form obvious variants of Pechner.

Regarding claim 10, Pechner does not expressly disclose:

The apparatus of claim 1, further comprising a variable radio frequency attenuator coupled between the modulator and the optical transmitter.

Rather, Pechner teaches a variable radio frequency amplifier (VGA in Fig. 7B) coupled between a modulator (640 in Fig. 1A) and an optical transmitter (240 in Fig. 1A). However, variable radio frequency attenuators are extremely common components in the art. The APA shows a radio frequency attenuator (20 in Fig. 1). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include a variable radio frequency attenuator in the apparatus of Pechner. One of ordinary skill in the art would have been motivated to do this to provide greater control over the radio frequency signal power levels. That is, amplifiers generally increase signal power while attenuators generally decrease signal power. While the variable radio frequency amplifiers of Pechner provide signal power control in a range greater than the original signal power level, variable radio frequency attenuators would increase the range of signal power control by including signal power control in a range lesser than the original signal power level, thus providing greater control over the radio frequency signal power levels.

Regarding claim 12, Pechner in view of the APA does not expressly disclose:

The apparatus of claim 10, wherein the controller controls the radio frequency attenuator.

Rather, the controller of Pechner (control system 290) controls the radio frequency amplifiers (control inputs and outputs for 290 in Fig. 7B). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange the controller to control the radio frequency attenuator(s), too. One of ordinary skill in the art would have been motivated to do this since the

controller of Pechner is already responsible for controlling the radio frequency signal power levels in Fig. 7B through the variable radio frequency amplifiers in Fig. 7B. That is, as the radio frequency attenuators also affect the radio frequency signal power levels in Fig. 7B, one would also arrange the controller of Pechner to control the radio frequency attenuators.

Regarding claim 13, Pechner in view of the APA does not expressly disclose:

The apparatus of claim 12, wherein the controller receives at least one command from the user interface and determines a setting of the radio frequency attenuator.

Regarding the limitation of "wherein the controller receives at least one command from the user interface", notice that the controller of Pechner (control system 290) may be used for troubleshooting the apparatus (p. 8, l. 13-15). Common troubleshooting techniques often include receiving at least one command from a user interface for interrogating the components of an apparatus for fault detection and/or fault location. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to receive at least one command from the user interface. One of ordinary skill in the art would have been motivated to do this since a troubleshooter generally desires to interrogate/query an apparatus to generate some kind of response from the apparatus indicative of a detected fault or a fault location.

Regarding the limitation of "wherein the controller...determines a setting of the radio frequency attenuator", notice that the controller of Pechner (control system 290) in view of the APA controls an actual radio frequency power level to match a target radio frequency power level (p. 19, 1st full paragraph). Such control may come through a variable radio frequency attenuator, as discussed in the treatment of claim 10 above. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange the controller to determine a setting of the radio frequency attenuator. One of ordinary skill in the art would have been motivated to do this since the controller has to control the variable radio frequency attenuator according to some particular setting.

Regarding claim 16, Pechner discloses:

A method of operating an apparatus (Fig. 1A) coupled to receive a digital electrical or optical signal (240B) and to output an optical signal (output of 240) modulated by the digital electrical signal, comprising the acts of:

providing a single user interface (e.g., control system 290) for the apparatus.

Pechner does not expressly disclose:

accepting commands at the user interface; and

setting parameters for operation of the apparatus from the commands.

However, such steps of accepting commands and setting parameters are extremely common in the art, as implied by the APA (paragraph [0009]). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include these steps of claim 16. One of ordinary skill in the art would have been motivated to do this since they are common steps for the standard practices of set up, calibration, and installation (APA, paragraph [0009]).

Additionally, notice that the controller of Pechner (control system 290) may be used for troubleshooting the apparatus (p. 8, l. 13-15). Common troubleshooting techniques often include these steps of claim 16. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to accept commands at the user interface and to set parameters for operation of the apparatus from the commands. One of ordinary skill in the art would have been motivated to do this since a troubleshooter generally desires to interrogate/query an apparatus (e.g., through an interrogation/query command while employing various parameter settings) to generate some kind of response from the apparatus indicative of a detected fault or a fault location.

Regarding claims 17, 18, and 20, Pechner in view of the APA does not expressly disclose:

(claim 17) The method of claim 16, wherein the digital electrical or optical signal is one of an Ethernet or an ASI compliant signal.

(claim 18) The method of claim 16, wherein the optical signal is quadrature amplitude modulated.

(claim 20) The method of claim 16, wherein the user interface is SNMP (simple network management protocol) compliant.

However, the APA shows that these limitations are prior art in the same field of art (Applicant's specification: Ethernet and ASI in paragraph [0007], QAM transmitter in Fig. 1B, SNMP in paragraph [0009]). Pechner does not teach against these limitations, and employing them would form obvious variants of Pechner.

Regarding claim 19, Pechner in view of the APA does not expressly disclose:

The method of claim 16, wherein the commands specify at least one of a radio frequency power level, a number of radio frequency channels, a bandwidth of at least one radio frequency channel, and a type of modulation.

However, notice that the controller of Pechner (control system 290) controls an actual radio frequency power level to match a target radio frequency power level (p. 19, 1st full paragraph). Such a target level is implied to be known/stored in the controller. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange the commands accepted at the user interface to specify at least a target radio frequency power level. One of ordinary skill in the art would have been motivated to do this since the controller of Pechner should know/store such a radio frequency power level, and commands accepted at the user interface constitute an intuitively obvious source of such information.

Regarding claim 21, Pechner in view of the APA discloses:

The method of claim 16, wherein the parameters include at least a radio frequency attenuation (APA, RF attenuation on p. 2, second to last line) or an optical output power attenuation of the apparatus.

Regarding claim 22, Pechner in view of the APA discloses:

The method of claim 16, the optical signal having substantially a single wavelength (the "optical carrier" on p. 22, l. 14 is understood to have substantially a single wavelength).

Regarding claim 23 Pechner in view of the APA discloses:

The method of claim 16, the apparatus performing radio frequency modulating (Pechner, 640 in Fig. 1A) and optical transmitting (Pechner, 240 in Fig. 1A) of the digital electrical signal.

Pechner in view of the APA does not expressly disclose:

wherein the user interface receives commands relating to one of the modulating and optical transmitting and sets at least one parameter relating to the other of the modulating and optical transmitting.

Regarding the limitation of "wherein the user interface receives commands relating to one of the modulating and optical transmitting", notice that the controller of Pechner (control system 290) may be used for troubleshooting the apparatus (p. 8, l. 13-15). Common troubleshooting techniques often include a user interface receiving some commands for interrogating the components of an apparatus for fault detection and/or fault location. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange the user interface to receive commands relating to operation of one of modulating and optical transmitting. One of ordinary skill in the art would have been motivated to do this since a troubleshooter generally desires to interrogate/query an apparatus to generate some kind of response from the apparatus indicative of a detected fault or a fault location, e.g., related to the modulator or the optical transmitter.

Regarding the limitation of "wherein the user interface...sets at least one parameter relating to the other of the modulating and optical transmitting", notice that Pechner teaches the control of the wavelength of the optical transmitter (p. 22, l. 19-25) through setting at least one parameter relating to operation of the optical transmitter (e.g., driver current or temperature of a laser). Although Pechner does not teach that its controller (control system 290) performs this wavelength control, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to arrange this controller to do so. One of ordinary skill in the art would have been motivated to do this since this controller already provides control functions for other aspects of the apparatus. That is, adding another transmitter control function to an existing transmitter controller is an obvious variant of Pechner.

Regarding claim 24, Pechner in view of the APA does not expressly disclose:

The method of claim 16, further comprising the act of variably attenuating an electrical signal in the apparatus.

Rather, Pechner teaches a variable radio frequency amplifier (VGA in Fig. 7B), which variably amplifies an electrical signal. However, variable radio frequency attenuators, which variably attenuate an

electrical signal, are extremely common components in the art. The APA shows a radio frequency attenuator (20 in Fig. 1). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include a variable radio frequency attenuator in the apparatus of Pechner. One of ordinary skill in the art would have been motivated to do this to provide greater control over the radio frequency signal power levels. That is, amplifiers generally increase signal power while attenuators generally decrease signal power. While the variable radio frequency amplifiers of Pechner provide signal power control in a range greater than the original signal power level, variable radio frequency attenuators would increase the range of signal power control by including signal power control in a range lesser than the original signal power level, thus providing greater control over the radio frequency signal power levels.

Regarding claim 25, Pechner in view of the APA discloses:

The method of claim 21, wherein the act of setting parameters includes setting a value for the radio frequency attenuation (APA, RF attenuation on p. 2, second to last line, setting this parameter implies, and may even be equivalent to, setting a value for RF attenuation) or the optical output power attenuation.

7. **Claims 6, 11, 14-15, 21, and 26-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pechner as applied to the claims above, and further in view of the APA and Barker et al. (U.S. Patent Application Publication No. US 2002/0164127 A1, hereinafter "Barker").

Regarding claim 6, Pechner does not expressly disclose:

The apparatus of claim 1, wherein the controller determines at least a radio frequency attenuation or an optical power attenuation of the optical transmitter.

However, optical power attenuation is known in the art, as shown by 34 in Fig. 1B of the APA, which is a prior art embodiment that includes broadcast transmissions. Also, determining optical power attenuation of an optical transmitter by a controller is known in the art, as shown by Barker (VOAs in Fig. 2). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include such additional limitations. One of ordinary skill in the art would have been motivated to do this to adjust power levels for optimization of communication performance at a receiver (Barker, end of paragraph [0030]) in a system that includes broadcast and narrowcast transmissions.

Regarding claim 11, Pechner in view of the APA and Barker discloses:

The apparatus of claim 1, wherein the controller determines at least one of a radio frequency attenuation, an optical attenuation (Barker, VOAs in Fig. 2), and a transmission power of the optical transmitter.

Regarding claim 14, Pechner in view of the APA and Barker discloses:

The apparatus of claim 10, further comprising a circuit coupled to the output terminal of the optical transmitter (incorporated aspects of Fig. 2 of Barker are implied to be located after transmitter 240 of Fig. 1A of Pechner) thereby to measure a ratio (Barker, end of paragraph [0030]) of power of a broadcast portion (Barker, 502 in Fig. 2) and a narrowcast portion (Barker, 604 in Fig. 2) of the optical signal.

Regarding claim 15, Pechner in view of the APA and Barker does not expressly disclose:

The apparatus of claim 14, wherein the controller controls the radio frequency attenuator (see the treatment of claim 12 above) and an attenuation associated with the optical signal using the measured ratio (Barker, VOAs in Fig. 2 in view of the end of paragraph [0030]).

Regarding claim 21, Pechner in view of the APA and Barker discloses:

The method of claim 16, wherein the parameters include at least a radio frequency attenuation (APA, RF attenuation on p. 2, second to last line) or an optical output power attenuation of the apparatus (Barker, parameters implied from 701 to VOAs in Fig. 2).

Regarding claim 26, Pechner in view of the APA and Barker discloses:

The method of claim 16, further comprising the act of measuring a ratio (Barker, end of paragraph [0030]) of power of a broadcast portion (Barker, 502 in Fig. 2) and a narrowcast portion of the optical signal (Barker, 604 in Fig. 2).

Regarding claim 27, Pechner in view of the APA and Barker discloses:

The method of claim 26, further comprising setting the parameters using the measured ratio (Barker, parameters implied from 701 to VOAs in Fig. 2 in view of the end of paragraph [0030]).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Coward et al. is cited to show another example of controlling a radio frequency power level by a controller (e.g., 321 in Fig. 2; RF signal power control by 290 in Fig. 7B).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER